



IFW

PATENT  
Attorney Docket No. A-69306-2  
Attorney File No.: 463037-00324

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of

TAO *et al.*

Serial No. 10/832,502

Filed: April 12, 2004

For: *Target Analyte Detection Using  
Asymmetrical Self-Assembled  
Monolayers*


Examiner: FREDMAN, Jeffrey N.

Art Unit: 1645

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence, including listed enclosures, is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Dated: October 11, 2005

Signed:   
Brent Yenchara

**INFORMATION DISCLOSURE STATEMENT  
AND  
STATEMENT OF RELATEDNESS**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In satisfaction of the duty of disclosure under 37 C.F.R. § 1.56, and in accordance with the provisions of 37 C.F.R. §§ 1.97 and 1.98, Applicants wish to draw the attention of the U.S. Patent and Trademark Office to the references cited on the accompanying form PTO/SB/8A. In accordance with 1287 Off. Gaz. Pat. Office 163, 10/19/2004, no copies of U.S. patents and U.S. published applications are enclosed.

Further, this application is a continuation of the following related U.S. Application – Serial No. 09/847,113, filed May 1, 2001 (now U.S. Patent No. 6,753,143), upon which the instant application relies for its priority date. Applicants wish to draw the attention of the U.S. Patent and Trademark Office to the references cited on the

accompanying substitute for form PTO-1449. Since all references cited, except for reference nos. A66 – A68, A73, A80, and A85 – A96, were previously disclosed in the above-mentioned application, in accordance with 37 C.F.R. § 1.98(d), no copies of these references are enclosed.

Further, in satisfaction of the duty of disclosure under 37 C.F.R. § 1.56, and as required by M.P.E.P. § 2001.06(b), Applicant notes that the present application is related to the following pending patent applications:

1. U.S.S.N. 08/873,978, filed June 12, 1997; U.S.S.N. 09/557,577, filed April 21, 2000;
2. U.S.S.N. 09/626,096, filed July 26, 2000;
3. U.S.S.N. 08/873,597, filed June 12, 1997;
4. U.S.S.N. 09/135,183, filed August 17, 1998;
5. U.S.S.N. 09/452,277, filed December 3, 1999; U.S.S.N. 11/208,384, filed August 19, 2005; and
6. U.S.S.N. 09/245,105, filed January 27, 1999.

Nothing herein shall constitute an admission concerning the contents of any of the cited references, nor shall the inclusion of a reference herein be considered an admission that the reference constitutes prior art against the invention claimed in the above-identified application. Submission of the present document shall not be construed as an admission that a search has been made or that better art does not exist.

As far as is known to the undersigned, this Information Disclosure Statement is being filed within three months of the filing date of a national application, within three months of the date of entry of the national state in an international application, or before

Serial No.: 10/823,502

Filed: April 12, 2004

the mailing date of a first Office Action on the merits as set forth in 37 C.F.R. § 1.97(b), and therefore no fee is required. While no further fee is believed to be due, if this belief is in error, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-2319 (Our File No. 463037-00324; Our Docket No.: A-69306-2).

Please direct further questions in connection with this petition to the undersigned at (415) 781-1989.

Respectfully submitted,

DORSEY & WHITNEY LLP

Dated: October 11, 2005 By: 

**Customer No.: 32940**

555 California Street, Suite 1000

San Francisco, CA 94104-1513

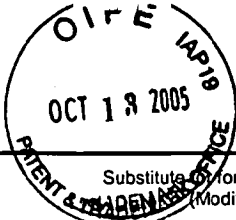
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Timothy A. Worrall, Reg. No. 54,552 for

Robin M. Silva, Reg. No. 38,304

Attachments: Form PTO/SB/8A-B, Substitute for form PTO 1449  
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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	10/823,502
				Filing Date	April 12, 2004
				First Named Inventor	TAO, Chunlin
				Art Unit	1645
				Examiner Name	FREDMAN, Jeffrey N.
Sheet	1	of	12	Attorney Docket Number	A-69306-2 (463037-00324)

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	4,704,193	11-03-1987	Bowers et al.	
	A2	4,707,352	11-17-1987	Stavrianopoulos	
	A3	4,707,440	11-17-1987	Stavrianopoulos	
	A4	4,711,955	12-08-1987	Ward et al.	
	A5	4,755,458	07-05-1988	Rabbani et al.	
	A6	4,787,963	11-29-1989	MacConnell	
	A7	4,840,893	06-20-1989	Hill et al.	
	A8	4,849,513	07-18-1989	Smith et al.	
	A9	4,868,103	09-19-1989	Stavrianopoulos et al.	
	A10	4,882,013	11-21-1989	Turner et al.	
	A11	4,894,325	01-16-1990	Englehardt et al.	
	A12	4,943,523	07-24-1990	Stavrianopoulos	
	A13	4,945,045	07-31-1990	Forrest et al.	
	A14	4,952,685	08-28-1990	Stavrianopoulos	
	A15	4,964,972	10-23-1990	Sagiv et al.	
	A16	4,994,373	02-19-1991	Stavrianopoulos	
	A17	5,002,885	03-26-1991	Stavrianopoulos	
	A18	5,013,831	05-07-1991	Stavrianopoulos	
	A19	5,066,372	11-19-1991	Weetall	
	A20	5,082,830	01-21-1992	Brakel et al.	
	A21	5,089,112	02-18-1992	Skotheim et al.	
	A22	5,156,810	10-20-1992	Ribi	
	A23	5,175,269	12-29-1992	Stavrianopoulos	
	A24	5,180,968	01-19-1993	Bruckenstein et al.	
	A25	5,241,060	08-31-1993	Englehardt et al.	
	A26	5,242,828	09-07-1993	Bergström et al.	
	A27	5,278,043	01-11-1994	Bannwarth et al.	
	A28	5,312,527	05-17-1994	Mikkelsen et al.	
	A29	5,328,824	07-12-1994	Ward et al.	
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	A31	5,391,272	02-21-1995	O'Daly et al.	
	A32	5,403,451	04-04-1995	Riviello et al.	
	A33	5,436,161	07-25-1995	Bergström et al.	
	A34	5,443,701	08-22-1995	Willner et al.	

Examiner Signature		Date Considered	
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<p>Substitute for form 1449A/PTO (Modified)</p> <p><b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b></p> <p>(use as many sheets as necessary)</p>				<b>Complete if Known</b>	
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	A35	5,449,767	09-12-1995	Ward et al.	
	A36	5,472,881	12-05-1995	Beebe et al.	
	A37	5,476,928	12-19-1995	Ward et al.	
	A38	5,491,097	02-13-1996	Ribi et al.	
	A39	5,552,270	09-03-1996	Khrapko et al.	
	A40	5,565,552	10-15-1996	Magda et al.	
	A41	5,571,568	11-05-1996	Ribi et al.	
	A42	5,573,906	11-12-1996	Bannwarth et al.	
	A43	5,591,578	01-07-1997	Meade et al.	
	A44	5,595,908	01-21-1997	Fawcett et al.	
	A45	5,601,982	02-11-1997	Sargent et al.	
	A46	5,620,850	04-15-1997	Bamdad et al.	
	A47	5,622,821	04-22-1997	Selvin et al.	
	A48	5,632,957	05-27-1997	Heller et al.	
	A49	5,650,061	07-22-1997	Kuhr et al.	
	A50	5,700,667	12-23-1997	Marble et al.	
	A51	5,705,346	01-06-1998	Okamoto et al.	
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	A53	5,741,700	04-21-1998	Ershov et al.	
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	A55	5,770,369	06-23-1998	Meade et al.	
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	A57	5,776,672	07-07-1998	Hashimoto et al.	
	A58	5,780,234	07-14-1998	Meade et al.	
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	A67 †	6,060,256	05-09-2000	Everhart et al.	
	A68 †	6,013,459	01-11-2000	Meade	

Examiner Signature	Date Considered
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	A69	6,071,699	06-06-2000	Meade et al.	
	A70	6,087,100	07-11-2000	Meade et al.	
	A71	6,090,933	07-18-2000	Kayyem et al.	
	A72	6,096,273	08-01-2000	Kayyem et al.	
	A73 †	6,096,497	08-01-2000	Bauer	
	A74	6,177,250	01-23-2001	Meade et al.	
	A75	6,180,352	01-30-2001	Meade et al.	
	A76	6,200,761 B1	03-13-2001	Meade et al.	
	A77	6,221,583 B1	04-24-2001	Kayyem et al.	
	A78	6,232,062 B1	05-15-2001	Kayyem et al.	
	A79	6,238,870 B1	05-29-2001	Meade et al.	
	A80 †	6,248,229 B1	06-19-2001	Meade	
	A81	6,258,545 B1	07-10-2001	Meade et al.	
	A82	6,268,149 B1	07-31-2001	Meade et al.	
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	A84	6,277,576 B1	08-21-2001	Meade et al.	
	A85 †	6,479,240 B1	11-12-2002	Kayyem	
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	A87 †	6,528,266 B1	03-04-2003	Meade et al.	
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	A89 †	2001-0034033 A1	10-25-2001	Meade et al.	
	A90 †	2002-0009810 A1	01-24-2002	Kayyem et al.	
	A91 †	2002-0033345 A1	03-21-2002	Meade	
	A92 †	2003-0003473 A1	01-02-2003	Kayyem et al.	
	A93 †	2003-0148328 A1	08-07-2003	Kayyem et al.	
	A94 †	2003-0150723 A1	08-14-2003	Kayyem et al.	
	A95 †	2003-0170677 A1	09-11-2003	Meade et al.	
	A96 †	2004-0101890 A1	05-27-2004	Meade et al.	

FOREIGN PATENT DOCUMENTS						
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	B1	CA 2 090 904	09-01-1993	Hoffman La Roche		
	B2	EP 0 063 879 A2	11-03-1982	Yale University		
Examiner Signature				Date Considered		

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	B3	EP 0 229 943 B1	07-29-1987	Molecular Biosystems Inc.		
	B4	EP 0 234 938 A2	02-09-1987	Cranfield Institute of Technology		
	B5	EP 0 515 615 A2	09-02-1996	Boehringer Mannheim		
	B6	EP 0 599 337 A2	01-06-1994	Canon K.K.		
	B7	JP 63-238166 A	10-04-1988	Mitsubishi Corp.		
	B8	JP 6-41183 A	02-15-1994	Mitsubishi Chemical		
	B9	WO 86/05815 A1	10-09-1986	Genetic International, Inc.		
	B10	WO 90/05303 A1	05-31-1990	Pharmacia AB		
	B11	WO 90/05732 A1	05-31-1990	The Trustees of Columbia University in the City of New York		
	B12	WO 92/10757 A1	06-25-1992	Boehringer Mannheim		
	B13	WO 93/10267 A1	05-27-1993	Igen, Inc.		
	B14	WO 93/22678 A1	11-11-1993	Baylor College of Medicine		
	B15	WO 94/22889 A1	10-13-1994	Cis Bio International		
	B16	WO 95/15971 A2/A3	06-15-1995	California Institute of Technology		
	B17	WO 96/40712 A1	12-19-1996	California Institute of Technology		
	B18	WO 97/01646 A2/A3	01-16-1997	University of North Carolina		
	B19	WO 97/27329 A1	07-31-1997	University of Chicago		
	B20	WO 97/31256 A1	08-28-1997	Cornell Research Foundation		
	B21	WO 97/41425 A1	11-06-1997	Pence, Inc.		
	B22	WO 97/44651 A1	11-27-1997	Australian Membrane and Biotechnology Institute		
	B23	WO 97/46568 A1	12-11-1997	California Institute of Technology		
	B24	WO 98/04740 A1	02-05-1998	Northwestern University		
	B25	WO 98/12539 A1	03-26-1998	Meso Scale Technologies, LLC		
	B26	WO 98/20162 A2/A3	05-14-1998	Clinical Micro Sensors, Inc.		
	B27	WO 98/27229 A1	06-25-1998	University of Chicago		
	B28	WO 98/28444 A2/A3	07-02-1998	University of Chicago		
	B29	WO 98/31839 A2/A3	07-23-1998	President & Fellows of Harvard College		

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	B30	WO 98/35232 A2/A3	08-13-1998	University of North Carolina		
	B31	WO 98/51823 A1	11-19-1998	Mosaic Technologies, Inc.		
	B32	WO 98/57158 A1	12-18-1998	Clinical Micro Sensors, Inc.		
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	B36	WO 99/37819 A2/A3	07-29-1999	Clinical Micro Sensors, Inc.		
	B37	WO 99/57317 A1	11-11-1999	Clinical Micro Sensors, Inc.		
	B38	WO 99/57319 A1	11-11-1999	Clinical Micro Sensors, Inc.		
	B39	WO 99/67425 A2/A3	12-29-1999	Clinical Micro Sensors, Inc.		

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	C1	Aizawa et al., "Integrated Molecular Systems for Biosensors," Sensors and Actuators B (Nos 1/3) Part 1:1-5 (March 1995).	
	C2	Albers et al., "Design of Novel Molecular Wires for Realizing Long-Distance Electron Transfer," Biochemistry and Bioenergetics, 42:25-33 (1997)	
	C3	Alleman, K.S., et al., Electrochemical Rectification at a Monolayer-Modified Electrode," J. Phys. Chem., 100:17050-17058 (1996).	
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				Examiner Name	FREDMAN, Jeffrey N.
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				First Named Inventor	TAO, Chunlin
				Art Unit	1645
				Examiner Name	FREDMAN, Jeffrey N.
Sheet	10	of	12	Attorney Docket Number	A-69306-2 (463037-00324)

NON PATENT LITERATURE DOCUMENTS				
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	C92	Palecek, "From Polarography of DNA to Microanalysis with Nucleic Acid-Modified Electrodes," <i>Electroanalysis</i> , 8(1):7-14 (1996).		
	C93	Parinov, S., "DNA Sequencing by Hybridization to Microchip octa- and Decanucleotides Extended by Stacked Pentanucleotides," <i>Nucleic Acids Research</i> , 24(15):2998-3004 (1996).		
	C94	Paterson, "Electric Genes: Current Flow in DNA Could Lead to Faster Genetic Testing," <i>Scientific American</i> , 33 (May 1995).		
	C95	Proudnikov, D. "Immobilization of DNA in Polyacrylamide Gel for the manufacture of DNA and DNA-Oligonucleotide Microchips," <i>Analytical Biochemistry</i> , 259:34-41 (1998).		
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	C97	Purugganan, M. D., et al., "Accelerated Electron Transfer Between Metal Complexes Mediated by DNA," <i>Science</i> , 241:1645-1649 (1988).		
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	C103	Schreiber, et al., "Bis(purine) Complexes of trans-a2Plll: Preparation and X-ray Structures of Bis(9-methyladenine) and Mixed 9-Methyladenine, 9-Methylguanine Complexes and Chemistry Relevant to Metal-Modified Nucleobase Triples and Quartets," <i>J. Am. Chem. Soc.</i> 118:4124-4132 (1996).		
	C104	Schuhmann, W., et al., "Electron Transfer between Glucose Oxidase and Electrodes via Redox Mediators Bound with Flexible Chains to the Enzyme Surface," <i>J. Am. Chem. Soc.</i> , 113:1394-1397 (1991).		
	C105	Schumm, et al., "Iterative Divergent/Convergent Approach to Linear Conjugated Oligomers by Successive Doubling of the Molecular Length: A Rapid Route to a 128 $\gamma$ -Long Potential Molecular Wire," <i>Angew. Chem. Int. Ed. Engl.</i> , 33(11):1360-1363 (1994).		
	C106	Sigal et al., "A Self-Assembled Monolayer for the Binding and Study of Histidine-Tagged Proteins by Surface Plasmon Resonance," <i>Anal. Chem.</i> , 68(3):490-497 (1996).		
	C107	Sloop et al., "Metalloorganic labels for DNA sequencing and mapping," <i>New. J. Chem.</i> , 18: 317-326 (1994).		
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	C109	Storhoff et al., "One-Pot Colorimetric Differentiation of Polynucleotides with Single Base Imperfections Using Gold Nanoparticles Probes," <i>J. Am. Chem. Soc.</i> , 120:1959-1964 (1998).		
	C110	Strobel, S. A., et al., "Site-Specific Cleavage of a Yeast Chromosome by Oligonucleotide-Directed Triple-Helix Formation," <i>Science</i> , 249:73-75 (1990).		

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	C111	Su, et al., "Interfacial Nucleic Acid Hybridization Studied by Random Primer 32P Labelling and Liquid-Phase Acoustic Network Analysis," Analytical Chemistry, 66(6):769-777 (1994).	
	C112	Telser, J., et al., "DNA Duplexes Covalently Labeled at Two Sites: Synthesis and Characterization by Steady-State and Time-Resolved Optical Spectroscopies," J. Am. Chem. Soc., 111:7226-7232 (1989).	
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	C114	Timofeev, E. et al., "Methidium Intercalator Inserted into Synthetic Oligonucleotides," Tetrahedron Letters, 37(47):8467-8470 (1996).	
	C115	Timofeev, E. et al., "Regioselective Immobilization of Short Oligonucleotides to Acrylic Copolymer Gel," Nucleic Acids Research, 24(16): 3142-3148 (1996).	
	C116	Tour, "Conjugated Macromolecules of Precise Length and Constitution. Organic Synthesis for the Construction of Nanoarchitectures," Chem. Rev., 96:537-553 (1996).	
	C117	Tour, et al., "Self-Assembled Monolayers and Multilayers of Conjugated Thiols, $\gamma$ - $\gamma$ -Dithiols, and Thioacetyl-Containing Adsorbates. Understanding Attachments between Potential Molecular Wires and Gold Surfaces," J. Am. Chem. Soc., 117:9529-9534 (1995).	
	C118	Tullius, T.D. and B.A. Dombroski, "Iron(II) EDTA Used to Measure the Helical Twist Along Any DNA Molecule," Science, 230:679-681 (1985).	
	C119	Turro, N. J., et al., "Molecular Recognition and Chemistry in Restricted Reaction Spaces. Photophysics and Photoinduced Electron Transfer on the Surfaces of Micelles, Dendrimers, and DNA," Acc. Chem. Res., 24:332-340 (1991).	
	C120	Turro, N., et al. "Photoelectron Transfer Between Molecules Adsorbed in Restricted Spaces," Photochem. Convers. Storage Sol. Energy, Proc. Int. Conf., 8th, pp 121-139 (1990).	
	C121	Uosake, K., et al., "A Self-Assembled Monolayer of Ferrocenylalkane Thiols on Gold as an Electron Mediator for the Reduction of Fe(III)-EDTA in Solution," Electrochimica Acta., 36(11/12):1799-1801 (1991).	
	C122	Van Ness, J., et al., "A Versatile Solid Support System for Oligodeoxynucleotide Probe-Based Hybridization Assays," Nucleic Acids Research, 19(12):3345-3350 (1991).	
	C123	Velev et al., "In Situ Assembly of Colloidal Particles into Miniaturized Biosensors," The ACS Journal of Surfaces and Colloids, Langmuir, 15(11):3693-3698 (1999).	
	C124	Watson et al., "Hybrid Nanoparticles with Block Copolymer Shell Structures," J. Am. Chem. Soc., 121:462-463 (1999).	
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	C127	Winkler, J. R., et al., "Electron Transfer in Ruthenium-Modified Proteins," Chem. Rev., 92:369-379 (1992).	
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	C129	Xu, et al., "Immobilization of DNA on an Aluminum(III) alkanebisphosphonate Thin Film with Electrogenated Chemiluminescent Detection," J. Am. Chem. Soc., 116:8386-8387 (1994).	

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	C130	Yang, et al., "Growth and Characterization of Metal(II) Alkaneobisphosphonate Multilayer Thin Films on Gold Surfaces," J. Am. Chem. Soc., 115:11855-11862 (1993).		
	C131	Yershov, G. et al., "DNA Analysis and Diagnostics on Oligonucleotide Microchips," Proc. Natl. Acad. Sci. USA, 93:4913-4918 (1996).		
	C132	Yu et al. "Uridine-conjugated-ferrocene DNA oligonucleotides for electronic detection of nucleic acids," Abstracts of Papers. ACS National Meeting, 217(1): 76 (1999).		
	C133	Zhou, et al., "Fluorescent Chemosensors Based on Energy Migration in Conjugated Polymers: The Molecular Wire Approach to Increased Sensitivity," J. Am. Chem. Soc., 117:12593-12602 (1995).		

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